A.D. 1869, 1st *April.* N° 987.

Feeding Bottles.

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LETTERS PATENT to Edward O'Connell, of Greenwich, in the County of Kent, for the Invention of "IMPROVEMENTS IN APPARATUS FOR SUPPLYING NOURISHMENT TO INFANTS, INVALIDS, AND OTHERS."

Sealed the 25th September 1869, and dated the 1st April 1869.

PROVISIONAL SPECIFICATION left by the said Edward O'Connell at the Office of the Commissioners of Patents, with his Petition, on the 1st April 1869.

I, EDWARD O'CONNELL, of Greenwich, in the County of Kent, do hereby declare the nature of the said Invention for "IMPROVEMENTS IN APPARATUS FOR SUPPLYING NOURISHMENT TO INFANTS, INVALIDS, AND OTHERS," to be as follows:—

My Invention relates to further improvements on Inventions for "Improvements in Infant's Feeding Bottles," for which Letters Patent were granted to me dated respectively the 25th day of April 1853, No. 987, and the 6th day of October 1859, No. 2274.

O'Connell's Improvements in Feeding Bottles.

I find that the infants' feeding bottles in general use are defective and objectionable in the following respects:—1st, the caps or covers of such bottles have not sufficient means for admitting atmospheric air to the inside of the bottle in order to allow the free extraction of fluid by suction when the cap or cover is on the neck of the said bottle, the caps or covers made of "nickel," German silver, or other corrosive metallic substances being unfit to be used for such a purpose; 2nd, the liability of artificial teats to collapse or flatten in the mouth by suction; and 3rd, the shields or mouth guards attached to feeding bottles being made of hard and brittle substances are liable to break, and from that cause as well as from their hardness frequently hurting a child using a feeding bottle supplied with such mouth guards.

Now in order to remedy the said defects, firstly, I provide a cap or cover for the bottle neck made of porcelain or other suitable material (the said cap or cover not being of a corrosive or other deleterious substance) and having a central aperture for the elastic or feeding tube to pass through. Near to or surrounding this said aperture in the cap or cover I make one or more holes for the admission of atmospheric air to the inside of the bottle by the aid of which said hole or holes the fluid or other nourishment in the bottle is easily obtained by suction. The central aperture, being intended for the elastic feeding tube only, if small soon gets completely filled by the expansion of the said feeding tube, but if larger than the feeding tube the fluid in the bottle would escape or run out should the bottle be placed in a horizontal or inverted position. To prevent the escape of the fluid through the hole or holes near to or surrounding the central aperture I place in the inside of the said cap or cover a disc or washer made of cork, india-rubber, or other suitable material, which said disc or washer covers the said hole or holes in the cap and is kept in such position by the lower edge of a coat or lining of cork, india-rubber, or other suitable material, which coating I attach to the remainder of the inside of the said cap or cover, or the said lining being dispensed with the disc or washer is held in its place by means of a pipe supplied with a flange, the said pipe passing through the central hole in the disc or washer and being inserted or screwed into the said cap or cover. By this arrangement free admission of atmospheric air is obtained to the inside of the bottle whilst at the same time the fluid cannot escape or run out. Thus when an effort is made by suction

to draw the fluid into the mouth air enters by the said hole or holes near to or surrounding the central aperture in the cap, forces in the elastic disc or washer, and passes into the bottle through the circle formed by the contact of the said disc or washer with the said lining. The said washer and lining being elastic in substance the contact of both does not offer sufficient resistance to keep out air during the operation of suction, but prevents the escape of the fluid because the pressure of air on the fluid in the bottle is made less by suction than the pressure of air from the outside of the said bottle, and in order to make the said cap or cover hold the more firmly on to the bottle neck I form thereon a series of rings or beading, the spaces between which are partially filled up by any expansion that may take place in the material forming that part of the cap or cover which comes in contact with the said bottle neck, and a vertical groove or slot may be made through one or more of the said rings or grooves through which the compressed air in the bottle may escape should the cap or cover be suddenly placed on the neck thereof, and so that free admission of air into the bottle may be at all times obtained. I make the said cap or cover greater in depth on the inside than the bottle neck on which it fits, so that the said cap or cover is prevented from pressing against or coming in contact with the top of the bottle neck and thereby excluding the air.

In order to remedy the defect of the artificial teats collapsing or flattening in the mouth by suction and thus preventing the food in the bottle from being effectually drawn through the said teats, my improvements consist, secondly, of a pipe or joint of bone, porcelain, or other suitable substance, to one end of which I attach a short piece of flexible tubing of suitable diameter either open at the extremity or partially closed to act as a valve, over which I place an artificial teat, and by this means a compound artificial teat or nipple is produced which will not collapse or flatten either by suction or pressure in the mouth.

It is found that shields or mouth guards for infant's feeding bottles made of hard substances are liable to break or otherwise hurt an infant, and in order to remedy such defect and objection, my Invention consists, thirdly, in making a shield or mouth guard of india-rubber or other soft and elastic material to avoid the risk of an infant being hurt or injured by the use of a mouth guard of a harder and more rigid substance.

The said shield or mouth guard being of an elastic material approaches more nearly the soft and flexible nature of the human breast and is made to fit over the nozzle or flange of the pipe or joint at the outer end of the elastic tube attached to the feeding bottle irrespective of the said nozzle or pipe being specially made to suit any size of hole.

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said Edward O'Connell in the Great Seal Patent Office on the 1st October 1869.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, EDWARD O'CONNELL, of Greenwich, in the County of Kent, send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the First day of April, in the year of our Lord One thousand eight hundred and sixty-nine, in the thirty-second year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said Edward O'Connell, Her special licence that I, the said Edward O'Connell, my executors, administrators, and assigns, or such others as I, the said Edward O'Connell, my executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for "IMPROVEMENTS IN APPARATUS FOR SUPPLYING NOURISHMENT TO INFANTS, INVALIDS, AND OTHERS," upon the condition (amongst others) that I, the said Edward O'Connell, my executors or administrators, by an instrument in writing under my, or their, or one of their hands and seals, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that I, the said Edward O'Connell, do hereby declare the nature of my said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and

by the following statement and accompanying Sheet of Drawings (that is to say) :—

My Invention relates to further improvements on Inventions for improvements in infants' feeding bottles, for which Letters Patent were granted to me dated respectively the 25th day of April 1853, No. 987, and the 6th day of October 1859, No. 2274.

I find that the infants' feeding bottles in general use are defective and objectionable in the following respects :—1st, the caps or covers of such bottles have not sufficient means for admitting atmospheric air to the inside of the bottle in order to allow the free extraction of fluid by suction when the cap or cover is on the neck of the said bottle, the caps or covers made of German silver or other corrosive metal substances being unfit to be used for such a purpose; 2nd, the liability of artificial teats to collapse or flatten in the mouth by suction; and 3rd, the shields or mouth guards attached to feeding bottles being made of hard and brittle substances are liable to break, and from that cause as well as from their hardness frequently hurt a child using a feeding bottle supplied with such mouth guards.

In order that my Invention may be clearly understood I will describe the same with reference to the accompanying Sheet of Drawings in which the various modifications of my Invention are illustrated.

Firstly. I provide a cap or cover *a*, Fig. 1, for the neck *b* of the bottle *c* made of porcelain or other suitable material (the said cap or cover not being of a corrosive or deleterious substance) and having a central aperture *d* for the elastic or feeding tube *e* to pass through. Near to or surrounding this aperture I make one or more holes *f* for the admission of atmospheric air to the inside of the bottle, by the aid of which said hole or holes the fluid or other nourishment in the bottle is easily obtained by suction. The central aperture *d* being intended for the elastic feeding tube *e* only, if small soon gets completely filled by the expansion of the said feeding tube, but if larger than the feeding tube the fluid in the bottle *c* would escape or run out should the bottle be placed in a horizontal or inverted position. To prevent the escape of the fluid through the hole or holes *f* near to or surrounding the central aperture *d* I place in the inside of the said cap or cover *a* a disc or washer *g* of cork, india-rubber, or other suitable material, which said disc or washer covers the said hole or holes *f* in the cap *a* and is kept in such position

by the upper edge of a coat or lining *h* of cork, india-rubber, or other suitable material, which coating I attach to the remainder of the inside of the said cap or cover *a*, or the said lining being dispensed with the disc or washer is held in its place by means of a pipe supplied with a flange, the said pipe passing through the central hole *d* in the disc or washer *g*, and being inserted or screwed into the said cap or cover. By this arrangement free admission of atmospheric air is obtained to the inside of the bottle *c*, whilst at the same time the fluid cannot escape or run out. Thus when an effort is made by suction to draw the fluid into the mouth air enters by the said hole or holes *f* near to or surrounding the central aperture *d* in the cap, forces in the elastic disc or washer *g*, and passes into the bottle through the circle formed by the contact of the said disc or washer *g* with the said lining *h*. The said washer and lining being elastic in substance the contact of both does not offer sufficient resistance to keep out air during the operation of suction, but prevents the escape of the fluid because the pressure of air on the fluid in the bottle is made less by suction than the pressure of air from the outside thereof. In order to make the said cap or cover *a* hold the more firmly on to the bottle neck *b* I form thereon a series of rings or beading, the spaces between which are partially filled up by any expansion that may take place in the material forming that part of the cap or cover which comes in contact with the said bottle neck, and a vertical groove or slot *i* may be made through one or more of the said rings or grooves through which the compressed air in the bottle may escape should the cap or cover be suddenly placed on the neck thereof, and so that free admission of air into the bottle may at all times be obtained. I make the said cap or cover greater in depth on the inside than the bottle neck on which it fits so that the said cap or cover is prevented from pressing against or coming in contact with the top of the bottle neck, and thereby excluding the air.

According to another modification I provide for the admission of air into the bottle *k* (Fig. 2), by forming on the cap or cover *l* a plug *m* of porcelain or other suitable material, the said cap and plug having a central hole through them for the passage of the feeding tube *n*, and on the outer side of the said plug *m* I form one or more grooves *o* in connection either with a hole or holes *p* through the said cap or cover *l*, or with another slit or groove *q* in the cap or cover at right angles or nearly so to the first. Around the plug *m* and fitting tightly thereon I place a

ring of cork or other suitable substance *r* which fits the neck of the bottle air-tight. When the food is drawn from the bottle the air enters freely through the hole *p*, or the groove *q*, and thence through the groove *o* into the bottle, but the food cannot pass out through the said grooves or holes for the reason before stated.

In order to remedy the defect of the artificial teat collapsing or flattening in the mouth by suction, and thus preventing the food in the bottle from being effectually drawn through the said teats, my improvements consist, secondly, of a pipe or joint *s* of bone, porcelain, or other suitable substance, to one end of which I attach a short piece of flexible tubing *t* of suitable diameter, either open at the extremity or partially closed to act as a valve, over which I place an artificial teat *u*, and by this means a compound artificial teat or nipple is produced which will not collapse or flatten either by suction or pressure in the mouth.

It is found that shields or mouth guards for infants' feeding bottles made of hard substances are liable to break and hurt infants and others using them, and in order to remedy such defect and objection my Invention consists, thirdly, in making a shield or mouth guard *v* of india-rubber or other soft and elastic material to avoid the risk of an infant being hurt or injured by the use of a mouth guard of a harder and more rigid substance. The said shield or mouth guard being of an elastic material approaches more nearly the soft and flexible nature of the human breast and is made to fit over the nozzle or flange of the pipe or joint *s*, at the outer end of the elastic tube *e*, attached to the feeding bottle *c* irrespective of the said nozzle or pipe, being specially made to suit any size of hole.

Having now described the nature and particulars of my said Invention I claim,—

First. Constructing the caps or covers of feeding bottles with an excentric hole or excentric holes through the solid part thereof, as seen in Fig. 1, and a hole or holes and groove or grooves, as seen in Fig. 2, for the admission of air to the interior of the bottle, as herein described and illustrated in the accompanying Drawings.

Second. The flexible tube for preventing the collapse of the artificial teat on suction being applied thereto, as herein described and illustrated in the accompanying Drawings.

And, third. The soft and elastic mouth guard to prevent injury to infants and others, as herein described and illustrated in the accompanying Drawings.

In witness whereof, I, the said Edward O'Connell, have hereunto set my hand and seal, this First day of October, in the year of our Lord 1869.

E. O'CONNELL. (L.S.)

LONDON:
Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE,
Printers to the Queen's most Excellent Majesty. 1869.

A.D. 1869. April 1. N° 987.

O'CONNELL'S Specification.

(1 SHEET)

FIG. 1.

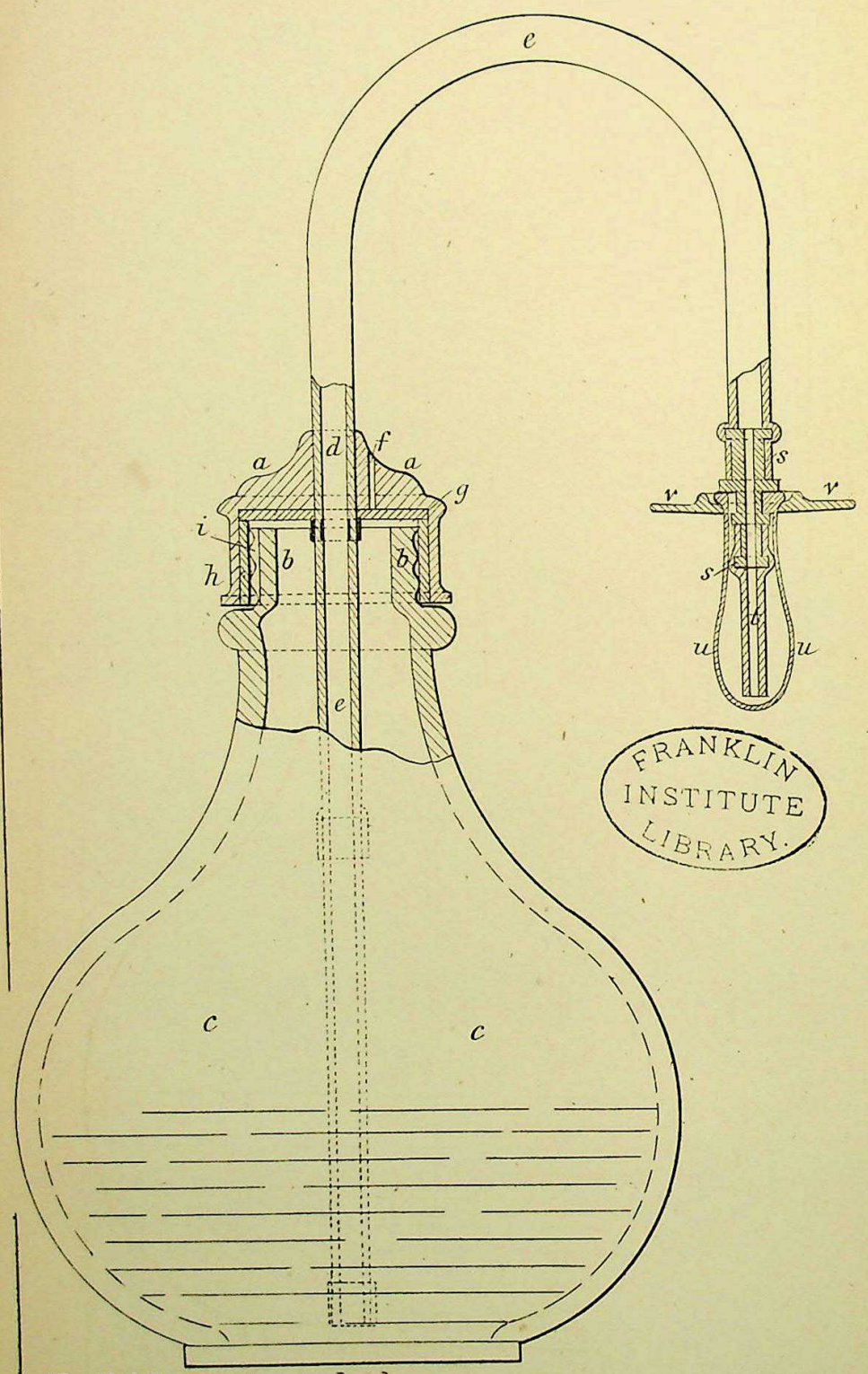

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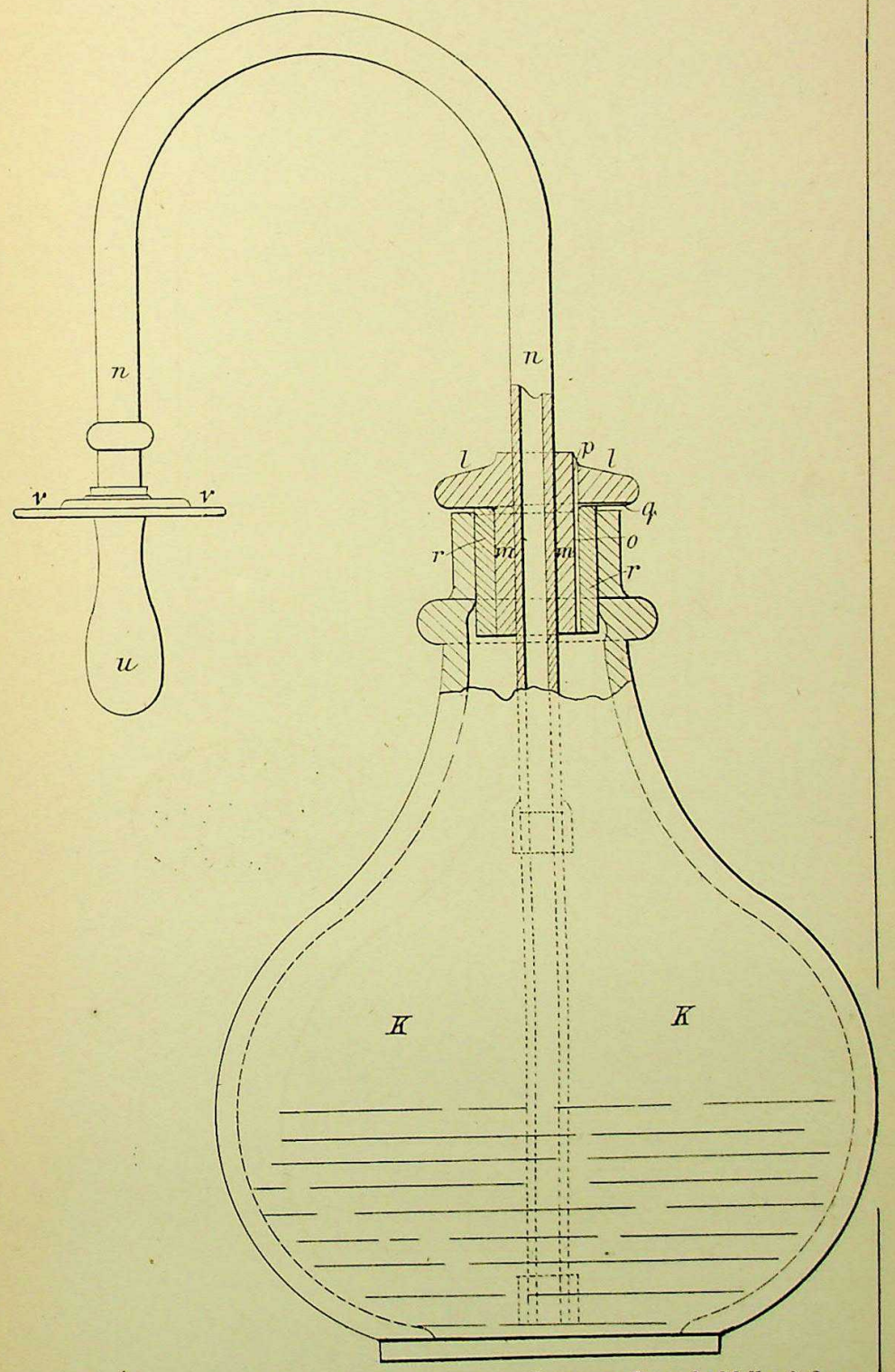
FIG. 2.



The filed drawing is not colored.

Drawn on Stone by Malby & Sons

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Printers to the Queen's most Excellent Majesty. 1869.